RESEARCH ARTICLE

Doubling-down on deprivation: Using latent profile analysis to evaluate an age-old assumption in relative deprivation theory

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Abstract

Theorists have long argued that two forms of relative deprivation exist: individual-based relative deprivation (IRD) whereby a person feels deprived *relative to other individuals* and group-based relative deprivation (GRD) whereby a person feels his/her ingroup is deprived *relative to other groups*. Combinations of IRD and GRD are therefore assumed to produce four response profiles: (i) high on IRD and GRD (i.e. 'doubly deprived'); (ii) high on IRD, low on GRD; (iii) low on IRD, high on GRD; or (iv) low on IRD and GRD. The existence of these profiles, however, has never been assessed. We address this oversight by using latent profile analysis to identify distinct response patterns to measures of IRD and GRD. Across two studies, we found no support for this typology, nor the oft-assumed doubly deprived profile. Rather, response patterns showed moderate levels of IRD across discrete profiles accompanied by considerable variability in GRD.

'[The doubly deprived]…consist of those most relatively deprived of all, who are dissatisfied both with the position of their group and also with their membership of it'—Walter G. Runciman (1966, p. 34).

Since Runciman's (1966) distinction between feeling personally deprived relative to other individuals (i.e. individual-based relative deprivation [IRD]) and perceiving that one's ingroup is deprived relative to other groups (i.e. group-based relative deprivation [GRD]), research has assumed that there are four types of people who experience relative deprivation. Some could be satisfied with both their personal and their group's status (i.e. low on IRD and GRD, respectively), producing what Runciman called an 'orthodox' response pattern. Others might be 'strivers' who are high on IRD, yet low on GRD. A third group consists of those who aim to improve their group's position *irrespective* of the impact such actions have for themselves (i.e. 'fraternalists'; i.e. high on GRD, but low on IRD). Finally, a fourth type of person is those who are high on both IRD and GRD—namely—the 'doubly deprived'.

As the group theorised to 'consist of the most relatively deprived of all' (Runciman, 1966, p. 34), the doubly deprived is a theoretically intriguing—yet largely overlooked—group. When first discussing this group, Runciman posited that an 'ideal type' (p. 34) of the doubly deprived is one 'who not only feels the deprivations and injustices imposed on his [or her] class but who explicitly aspires to lead or even ultimately to rule his [or her] class in the course of securing redress on their behalf' (p. 34). Runciman further argued that the doubly deprived 'have had striking effects on the course of history' (p. 34), implying that they form the vanguards of society. Given the importance placed on this particular type of person, it is striking that so little research has sought to identify the doubly deprived (also see Foster & Matheson, 1995).

The current research addresses this oversight by examining self-reported levels of IRD and GRD amongst a national sample of New Zealand adults (Study 1) and a group of university faculty in California (Study 2). By assessing people's levels of IRD and GRD in relation to their ethnic and workplace identities (respectively), we

are well-suited to identify the doubly deprived response profile—if one exists. We begin by reviewing the relative deprivation literature to demonstrate distinctions between IRD and GRD. Latent profile analysis (LPA) is then introduced as a tool for identifying distinct patterns underlying people's responses to continuous measures. Because LPA is a person-centred (rather than variable-centred) approach towards data analyses (Collins & Lanza, 2010), it is an ideal tool for examining the doubly deprived. We conclude with an overview of the current research.

RELATIVE DEPRIVATION

Relative deprivation (RD) theory is based on the premise that people respond to their *perceived* (rather than actual) status *relative to* others. Dating back to Stouffer, Suchman, DeVinney, Star, and Williams' (1949) work with US Army Air Corps soldiers, research has shown that people's perception of their share of an outcome shapes their responses to inequality. Because social comparisons form the basis of this process (Pettigrew, 1967), the target people compare themselves to can leave them feeling either relatively deprived or, in some cases, relatively advantaged (Leach, Snider, & Iyer, 2002). In turn, perceptions of RD elicit responses to inequality (for a review, see Smith, Pettigrew, Pippin, & Bialosiewicz, 2012).

In recognising the importance of people's *relative* status, it is critical to distinguish between comparing (i) oneself to another person and (ii) one's ingroup to another group. Accordingly, Runciman (1966) noted that people can experience two distinct forms of RD: (i) IRD and (ii) GRD. Whereas IRD entails unfavourable comparisons between the self and other individuals, GRD occurs when a person perceives his or her group to be worse off than other groups. Because IRD and GRD are elicited by comparisons made at separate levels of analysis (Smith et al., 2012), they facilitate distinct

reactions—whereas IRD negatively correlates with *self-focused responses* including mental and physical well-being (Abrams & Grant, 2012; Osborne & Sibley, 2013), GRD positively correlates with *group-focused responses* such as support for collective action (Osborne & Sibley, 2013; Walker & Mann, 1987).

Based on the distinction between IRD and GRD, Runciman (1966) argued that people fall into one of four 'ideal types' (p. 33; see Figure 1). The first group, whom Runciman labelled as 'orthodox', consists of those who are low on both IRD and GRD. These people are 'neither ambitious within [their] group nor resentful on its behalf' (p. 33). Another ideal type consists of those who are high on IRD but low on GRD—'strivers' who are 'dissatisfied with [their] present situation, but not in a way that gives [them] common cause with' (p. 33) others. The third type is those who believe that their group is deprived (i.e. high on GRD), yet feel they are personally well-off (i.e. low on IRD)—a group Runciman labelled as 'fraternalists'. Finally, Runciman argued that the fourth group—those who are *particularly* motivated to challenge the status quo—consists of those who are 'doubly deprived' (i.e. high on both IRD and GRD).

Although these ideal types appear intuitive, relatively few studies have searched for the doubly deprived. In a rare exception, Foster and Matheson (1995) showed that women who were high on both IRD and GRD were particularly likely to engage in collective action (also see Smith, Spears, & Oyen, 1994). Others, however, have failed to find support for the effects of double deprivation on various outcomes (e.g. Pettigrew et al., 2008; Vanneman & Pettigrew, 1972). This has led some to argue that IRD may be an *antecedent* to GRD, which, in turn, predicts group-based outcomes (Beaton & Tougas, 1997; Pettigrew, 2002). That is, GRD may mediate the relationship between IRD and people's reactions to
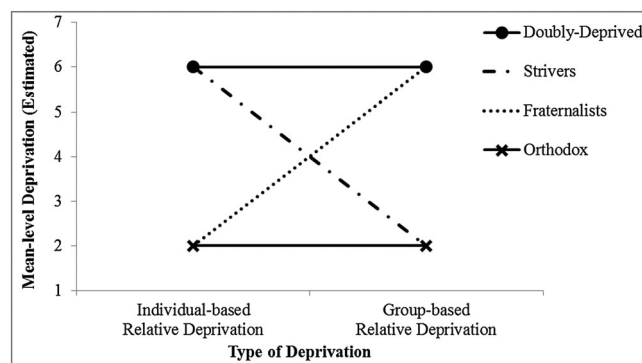

Fig. 1: Theoretical 'types' of response patterns to individual-based and group-based relative deprivations as per Runciman's (1966) typology

unfair treatment—a possibility that challenges the validity of the doubly deprived.

Another reason to question Runciman's (1966) typology—and the presence of a doubly deprived group in particular—comes from studies on people's perceptions of discrimination. Specifically, research shows that people recognise when their group encounters discrimination, yet fail to identify when they are *personally* discriminated against (Crosby, 1984; Operario & Fiske, 2001; Taylor, Wright, Moghaddam, & Lalonde, 1990). This phenomenon, known as the personal/group discrimination discrepancy, casts doubt on the presence of a doubly deprived response pattern whereby people see themselves as high on GRD *and* IRD. Still, Runciman's general typology, as well as the specific assertion that there is a distinct category of people who are doubly deprived, is a largely unstudied component of RD theory.

LATENT PROFILE ANALYSIS

Advances in latent variable mixture modelling have made an assessment of Runciman's (1966) typology possible. Specifically, LPA is a *person-centred* analytic technique used to identify distinct underlying (i.e. latent) subgroups of people based on their responses to continuously measured variables (i.e. indicators). Whereas approaches like factor analysis assume that a *continuous* latent variable(s) accounts for the co-variation between observed variables, LPA is used when *categorical* latent variables underlie these associations (Collins & Lanza, 2010). In other words, LPA identifies distinct groups of people who respond to indicators in a similar manner. Thus, LPA is ideally suited to assess Runciman's (1966) typology.

Although reviews of LPA can be found elsewhere (Asparouhov & Muthén, 2013; Collins & Lanza, 2010; McCutcheon, 2002; Vermunt, 2010), a few notes are warranted. To begin, LPA uses people's responses to indicator variables to estimate their *probability* of belonging to a given latent profile. Because people's probability of group membership is calculated for each latent profile, LPA can estimate classification errors (i.e. measurement error) and identify the *latent* profile to which people most likely belong. Covariates can then be used to predict people's membership in a given profile (relative to a comparison profile) via multinomial logistic regression. Thus, LPA is a flexible analytic tool that locates latent subgroups of people on the basis of their responses to observed indicators. No research to date, however, has used LPA to differentiate between people's responses to measures of IRD and GRD.

OVERVIEW OF STUDIES

The current research aims to address this oversight by evaluating Runciman's (1966) typology. Accordingly, we assess people's feelings of IRD and GRD in a national sample of New Zealand adults (Study 1) and amongst a sample of university faculty in California who experienced a large pay cut (Study 2). The diversity across these settings provides us with an ideal opportunity to examine the presence (or absence) of a subgroup of people who reports being doubly deprived. Specifically, our samples vary by type of conflict (i.e. ethnic versus workplace) and country (i.e. New Zealand versus the USA). As such, if the doubly deprived exist, we should be able to locate them in at least one of our samples. If, however, our analyses fail to uncover a group who is high on both IRD and GRD, then Runciman's (1966) typology must be called into question. Because these analyses are—by necessity—exploratory, we outline the questions guiding our research, followed by a set of hypotheses, in the succeeding text.

Research Question 1

The main question guiding this research is whether some people perceive themselves as doubly deprived. As noted earlier, these people are argued to be part of a revolutionary vanguard whose responses to their disadvantaged status shape history. Yet, there is a notable absence of evidence demonstrating their existence. Moreover, research on the personal/group discrimination discrepancy calls into question the presence (or at least the prevalence) of such an ideal type. Thus, we aim to answer the following: Is there a distinct group of people who are high on both IRD and GRD? More generally, what support is there for Runciman's (1966) typology?

Research Question 2

A related question focuses on the prevalence of these profiles. Specifically, we seek to identify the proportion of the population who occupies each of the latent profiles uncovered by our analyses. By estimating the proportion of our samples who occupies a given latent profile, we will be able to identify the typical response people have when evaluating their personal—and group's—relative status. Thus, we ask the following: What type of response pattern are people most likely to display?

Hypotheses

Although identifying the specific latent profiles within our samples is an exploratory pursuit, we can formulate tentative hypotheses about the demographic correlates of *likely* profiles. Given the inequities that exist between minority and majority group members (e.g. Harris et al., 2006), minority group members should be more likely than majority group members to belong to latent profiles characterised by high levels of GRD. Similarly, response profiles that reflect low levels of GRD should be comprised of more majority than minority group members. That is, group status should differentiate between latent profiles with high (versus low) levels of GRD.

Socioeconomic status (SES) should also predict membership in discrete latent profiles. Indeed, research suggests that IRD and GRD are partly based on objective indicators of inequality (Osborne, Sibley, & Sengupta, 2015; Pettigrew et al., 2008). As such, latent profiles that vary by IRD and GRD should also differ in their SES composition. Those of low SES should be more likely than those of high SES to belong to latent profiles reflecting high levels of deprivation. In contrast, those of high SES should be more likely than those of low SES to belong to latent profiles reflecting low levels of deprivation.

Finally, people's political ideology should predict their membership in different latent profiles. Specifically, because conservatism is rooted in opposition to social change (Jost, Glaser, Kruglanski, & Sulloway, 2003), latent profiles characterised by high levels of GRD—a correlate of support for collective action (Abrams & Grant, 2012; Osborne & Sibley, 2013)—should be negatively associated with conservatism. That is, the more conservative a participant, the less likely she will belong to a latent profile with high levels of GRD. Conversely, conservatism should be positively associated with membership in latent profiles with low levels of GRD.

These research questions and hypotheses were first examined in a national study of New Zealand adults. We now turn to a description of Study 1.

STUDY 1

Sampling Procedure

Data for Study 1 come from Time 3 of the New Zealand Attitudes and Values Study (NZAVS)—a national longitudinal study that began in 2009.[1] Sampling for Time 3

took place on two occasions. The first occasion, which occurred in 2009 (i.e. Time 1), was based on a random sample of New Zealand adults drawn from the electoral roll (i.e. a national registry of registered voters). This initial effort yielded 6518 participants that, after adjusting for errors in the electoral roll (and including anonymous responses), represents a response rate of 16.6%. By 2011 (i.e. Time 3), 3914 participants were in the sample (a retention rate of 60%). To compensate for sample attrition, a non-random booster sample was recruited through the website of a major New Zealand newspaper in 2011. This second sampling occasion yielded an additional 2970 participants. Thus, Time 3 of the NZAVS included 6884 participants (i.e. 3914 retained from Time 1 and 2970 from the booster sample recruited in 2011).

Participants

Of the 6884 people who participated in Time 3 of the NZAVS, 6880 (i.e. 99.9% of the sample) provided partial or complete responses to our indicators and were included in the current study. The mean age of these participants was 50.75 ($SD = 15.97$), a majority of whom were women ($n = 4294$, 62.4%). As for ethnicity, participants identified as either (i) New Zealand European ($n = 4755$, 69.1%), (ii) Māori ($n = 743$, 10.8%), (iii) Asian ($n = 234$, 3.4%), (iv) Pacific Islander ($n = 149$, 2.2%), or (v) other ($n = 999$, 14.5%).

Measures

The NZAVS included a two-item measure of IRD adapted from Abrams and Grant (2012). This measure had participants use a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*) to indicate their agreement with the following two statements: (i) 'I'm frustrated by what I earn relative to other people in New Zealand' and (ii) 'I generally earn less than other people in New Zealand'. These items were averaged to assess IRD ($r(6689) = .424$, $p < .001$). A similar two-item measure of GRD had participants indicate their agreement with the following two statements: (i) 'I'm frustrated by what my ethnic group earns relative to other groups in New Zealand' and (ii) 'People from my ethnic group generally earn less than other groups in New Zealand'. These items were averaged to assess GRD ($r(6686) = .466$, $p < .001$).

Also included in the NZAVS were measures of (i) income and (ii) political orientation. Income was assessed by having participants 'estimate [their] *total household income* (before tax) for the year 2011'.[2] Political orientation

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[1]Time 3 data were used because it was the first time point in which measures of IRD and GRD were included in the survey.

[2]Missing values for income were replaced with the sample mean.

Table 1. Descriptive statistics and bivariate correlations for the variables included in Study 1

	1	2	3	4	5	6	7
1. Age	—						
2. Sex[a]	−.166**	—					
3. Minority[b]	−.160**	.014	—				
4. Income[c]	−.075**	−.013	−.060**	—			
5. Conservatism	.201**	−.069**	.014	.000	—		
6. Individual-based relative deprivation	−.070**	.029*	.114**	−.196**	.013	—	
7. Group-based relative deprivation	−.023†	−.012	.510**	−.083**	.071**	.265**	—
Mean	50.75	0.62	0.19	96683.43	3.72	3.46	2.44
SD	15.97	0.48	0.39	173748.40	1.38	1.49	1.40

Note:
[a]Sex was dummy-coded (0 = man; 1 = woman).
[b]Minority was dummy-coded (0 = New Zealand European; 1 = minority).
[c]Missing values were replaced by the sample mean. Income was then log transformed. For descriptive purposes, the *mean* and *SD* reported in Table 1 are in their original units.
†$p < .10$.
*$p < .05$.
**$p < .001$.

was assessed by having participants indicate how 'politically liberal versus conservative' they viewed themselves on a 7-point scale (1 = *extremely liberal*; 7 = *extremely conservative*). Table 1 shows the bivariate correlations and descriptive statistics for the variables included in Study 1.

Result and Discussion

Analytic Approach

The aim of this study was to assess the validity of Runciman's (1966) typology. To these ends, we conducted an LPA using the three-step approach developed by Asparouhov and Muthén (2013) and implemented in Mplus version 7.11 (Muthén & Muthén, 1998–2012). The three-step approach begins by estimating the number of profiles underlying people's responses to a set of indicator variables. Participants are then assigned to the latent profile to which they most likely belong. Finally, covariates are used to predict participants' membership in each of the latent profiles.

McCutcheon (2002) notes that there are four common criteria used to assess model fit for an LPA including the (i) chi-square test (χ^2); (ii) likelihood ratio chi-square test (G^2); (iii) Akaike information criteria (AIC); and (iv) Bayesian information criteria (BIC). Because the former two indices are conservative in large samples, the AIC and BIC—which penalise models for the number of parameters estimated or a combination of the parameters estimated and sample size, respectively—are preferred when evaluating model fit. Although no rules of thumb exist for determining an acceptable (versus unacceptable) model, those with small AICs and/or BICs are preferred over models with large values.

Latent Profile Analysis

To assess the validity of Runciman's (1966) typology, participants' responses to our measures of IRD and GRD were treated as indicators of a range of possible latent profiles. Specifically, we posited that between 1 and 5 latent profiles were needed to explain the covariation between our two indicators. To ensure that solutions were based on global (rather than local) maxima, each solution was estimated using 5000 random starts and 500 final iterations.[3]

As shown in Table 2, model fit improved with the addition of each latent profile. Whereas the BIC for a one-profile solution was 49070.489, the BIC dropped to 47591.289 in a two-profile solution (ΔBIC1➡2 profiles = 1479.200). Similar drops in the AIC, BIC and sample size-adjusted BIC were observed with the addition of each subsequent profile but plateaued with the estimation of the fifth profile (ΔBIC4➡5 profiles = 335.878). Moreover, the proportion of participants falling into the fifth profile was too small to be of importance (i.e. 3.0% of the sample). Finally, the estimated means for each of the latent profiles showed that the fifth profile reflected an exaggerated version of another profile (i.e. moderate levels of IRD, coupled with high levels of GRD). Thus, we decided that four profiles provided the most parsimonious account of our data.

Further support for our four-profile solution is provided in Table 3. Specifically, the diagonal in this table displays the average probability that a participant's estimated most likely latent profile membership was the

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[3]The *Mplus* syntax for these analyses is available via the online Appendix. You may also contact the corresponding author to request the *Mplus* syntax.

Table 2. Model fit for the different profile solutions of the LPA from the NZAVS

Profiles	Log-likelihood	AIC	BIC	aBIC	Entropy
One profile	−24 517.572	49 043.144	49 070.489	49 057.778	—
Two profiles	−23 764.717	47 543.434	47 591.289	47 569.044	0.792
Three profiles	−23 279.069	46 578.139	46 646.503	46 614.725	0.840
Four profiles	−23 041.235	46 108.470	46 197.343	46 156.032	0.827
Five profiles	−22 860.042	45 752.083	45 861.465	45 810.621	0.861

Note: LPA, latent profile analysis; NZAVS, New Zealand Attitudes and Values Study; AIC, Akaike Information Criterion; BIC, Bayesian Information Criterion; aBIC, sample size-adjusted Bayesian Information Criterion.

Table 3. Average latent profile probabilities for most likely latent profile membership (row) by latent profile (column) amongst NZAVS participants

	1	2	3	4
1. Profile 1 (*Content*)	**.909**	.090	.000	.000
2. Profile 2 (*Slightly Content*)	.076	**.894**	.030	.000
3. Profile 3 (*Moderate*)	.000	.149	**.837**	.014
4. Profile 4 (*Deprived*)	.000	.000	.026	**.974**

Note: Values along the diagonal (highlighted in bold) reflect the average probability that a person estimated to belong to the given latent profile was categorised correctly. Profile 1 was characterised by moderate levels of IRD and low levels of GRD. Profile 2 was characterised by moderate levels of IRD and relatively low levels of GRD. Profile 3 was characterised by moderate levels of IRD and GRD. Profile 4 was characterised by moderate levels of IRD and high levels of GRD.
NZAVS, New Zealand Attitudes and Values Study.

actual latent profile to which he or she was assigned. That is, the bold values indicate the probability that a given participant was correctly categorised in the given latent profile. For example, a participant whose most likely latent profile membership was estimated to be in *Profile 4* had a 97.4% chance of being categorised therein, whereas the same person had a 2.6% probability of being categorised in *Profile 3*. Examining the results in this table shows that there was a high likelihood that participants were correctly categorised in the given profile but only a small chance that they were incorrectly categorised in any of the remaining latent profiles.

Figure 2 presents the estimated means of IRD and GRD for each of our four latent profiles. The first—and largest—profile, which contained 49.6% of the sample, consisted of participants with moderate levels of IRD ($M = 3.039$; $SE = 0.028$; 95% CI = 2.983, 3.094) accompanied by low levels of GRD ($M = 1.365$; $SE = 0.014$; 95% CI = 1.339, 1.392). As such, we labelled this profile *Content*. The second largest profile (27.9% of the sample) displayed a similar, albeit attenuated, pattern whereby participants expressed moderate levels of IRD ($M = 3.739$; $SE = 0.034$; 95% CI [3.672, 3.806]) and relatively low levels of GRD ($M = 2.670$; $SE = 0.035$; 95% CI [2.602, 2.738]). Given its similarities with the *Content* group, we labelled this profile *Slightly Content*. Because the third largest profile (17.2% of the sample) had moderate levels of both IRD ($M = 3.976$; $SE = 0.043$; 95% CI [3.891, 4.061]) and GRD ($M = 4.083$; $SE = 0.034$; 95% CI [4.016, 4.150]), we labelled it *Moderate*. Finally, a small (5.2% of the sample), although notable, proportion of participants felt that they were not particularly high on IRD ($M = 4.215$; $SE = 0.096$; 95% CI [4.026, 4.403]), but that their ethnic group was deprived (i.e. high on GRD; $M = 6.105$; $SE = 0.049$; 95% CI [6.009, 6.200]). We labelled this profile *Deprived*. Absent from our profiles, however, is a group of doubly deprived. Indeed, comparing the theoretical types in Figure 1 with our empirically based profiles in Figure 2 highlights the lack of support for Runciman's (1966) typology.
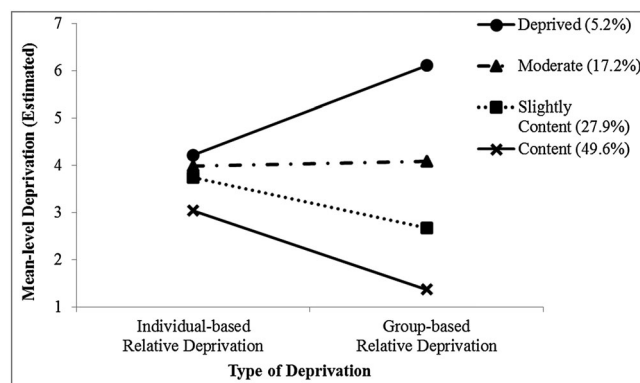

Fig. 2: Estimated means for individual-based and group-based relative deprivations as a function of membership in the given latent profile for Study 1

Demographic Correlates

After identifying the appropriate number of latent profiles needed to explain the co-variation between our indicators, we examined the demographic correlates of these profiles. Because the *Content* profile was the most prevalent response pattern, we predict people's category membership in each of the remaining latent profiles relative to this profile. Thus, our multinomial logistic regression predicts the likelihood that participants belong to the given latent profile relative to the *Content* profile (Table 4).

Slightly Content Versus Content. As expected, income was negatively associated with belonging to the *Slightly Content* (versus *Content*) profile ($B = -0.187$; $SE = 0.089$; $p = .036$; 95% CI [-0.361, -0.013]). That is, the higher the participants' income, the less likely they were to belong to the *Slightly Content* profile. Moreover, New Zealand Europeans were more likely than minorities to be in the *Content* (versus *Slightly Content*) profile ($B = 1.043$; $SE = 0.160$; $p < .001$; 95% CI [0.729, 1.357]). Unexpectedly, participants' likelihood of belonging to the *Slightly Content* (versus *Content*) profile *increased* in accordance with their conservatism ($B = 0.103$; $SE = 0.030$; $p = .001$; 95% CI [0.044, 0.162]). We examine the possibility that this finding reflects the tendency for majority group members to deny the privileged status of their ingroup in our General Discussion.

Moderate Versus Content. Consistent with the previous analyses, minorities were more likely than New Zealand Europeans to belong to the *Moderate* (versus *Content*) profile ($B = 2.691$; $SE = 0.131$; $p < .001$; 95% CI [2.434, 2.948]). Conversely, income

was negatively associated with belonging to the *Moderate* (versus *Content*) profile ($B = -0.194$; $SE = 0.069$; $p = .005$; 95% CI [-0.329, -0.059]). Also, as levels of conservatism increased, the likelihood of belonging to the *Moderate* (versus *Content*) profile increased ($B = 0.157$; $SE = 0.033$; $p < .001$; 95% CI [0.092, 0.222]). Finally, there was a positive association between age and belonging to the *Moderate* (versus *Content*) profile ($B = 0.009$; $SE = 0.003$; $p = .003$; 95% CI [0.003, 0.015]). That is, the older the participant, the less likely he or she was to belong to the *Content* latent profile.

Deprived Versus Content. As the latent profile with elevated levels of GRD, we expected that minorities would be more likely than New Zealand Europeans to belong to the *Deprived* (versus *Content*) profile. Accordingly, minorities were much more likely than New Zealand Europeans to fit the *Deprived* (versus *Content*) profile ($B = 4.896$; $SE = 0.219$; $p < .001$; 95% CI [4.467, 5.325]). The effect of group status on membership in the *Deprived* (versus *Content*) profile is particularly pronounced when examining the odds ratio of group membership—minorities were over 133 times *more likely* than New Zealand Europeans to belong to the *Deprived* (versus *Content*) profile. There was also a small, albeit reliable, positive association between age and membership in the *Deprived* (versus *Content*) profile ($B = 0.010$; $SE = 0.005$; $p = .045$; 95% CI [0.000, 0.020]). Moreover, income was negatively associated with the likelihood of belonging to the *Deprived* (versus *Content*) profile ($B = -0.175$; $SE = 0.080$; $p = .028$; 95% CI [-0.332, -0.018]). Conservatism did not, however, distinguish between participants in the *Deprived* and *Content* profiles ($B = 0.000$; $SE = 0.057$; $p = .994$; 95% CI [-0.11172, 0.11172]).

Table 4. Multinomial logistic regression predicting latent profile membership as a function of demographic covariates. Coefficients represent the relative log odds of belonging to the given latent profile versus the content latent profile

	Slightly content (versus *Content*)			*Moderate* (versus *Content*)			*Deprived* (versus *Content*)		
	B	*SE*	Odds ratio	*B*	*SE*	Odds ratio	*B*	*SE*	Odds ratio
Age	−0.001	0.003	0.999	0.009**	0.003	1.009	0.010*	0.005	1.010
Sex[a]	−0.112	0.087	0.894	−0.044	0.095	0.957	0.093	0.158	1.097
Minority[b]	1.043***	0.160	2.838	2.691***	0.131	14.746	4.896***	0.219	133.754
Income[c]	−0.187*	0.089	0.829	−0.194**	0.069	0.824	−0.175*	0.080	0.839
Conservatism	0.103**	0.030	1.108	0.157***	0.033	1.170	0.000	0.057	1.000

Note:
[a]Sex was dummy-coded (0 = man; 1 = woman).
[b]Minority was dummy-coded (0 = New Zealand European; 1 = minority).
[c]Missing values were replaced by the sample mean. Income was then log transformed.
*$p < .05$.
**$p < .01$.
***$p < .001$.

Summary

Our analyses identified four latent profiles underlying people's responses to IRD and GRD. These response patterns, however, failed to resemble Runciman's (1966) typology. Rather, the four sub-types identified in our LPA had comparable levels of IRD, yet varied considerably in their estimated levels of GRD. In addition, when predicting membership in these four latent profiles, we showed that income was negatively, whereas being an ethnic minority was positively, associated with belonging to the profiles with higher levels of GRD (relative to the *Content* profile). Indeed, minorities were over 133 times more likely than New Zealand Europeans to belong to the *Deprived* (versus *Content*) latent profile. Nevertheless, evidence of an ideal type high on both IRD and GRD (i.e. the doubly deprived) was tenuous at best.

STUDY 2

Although Study 1 challenges Runciman's (1966) typology, confidence in our findings would be increased if we were to replicate our results in a different context. Accordingly, we draw upon data from university faculty in California who were involved in a contentious pay dispute. Specifically, the two public university systems in California (i.e. California State University and University of California) encountered a $584 million deficit in 2009–2010 (Benefield, 2009, July 24). To cope with these fiscal constraints, administrators from both systems implemented a furlough programme mandating that faculty take 2 days of unpaid leave each month, resulting in a 10% salary reduction. Although the furlough averted layoffs, the pay cut was unpopular with university employees. Indeed, many expressed discontent and protested the university's decision (Osborne, Smith, & Huo, 2012).

The university furlough provides the perfect context for assessing the generalisability of the results from Study 1. Specifically, the furlough captures a *different type* of intergroup conflict. Whereas Study 1 examined perceived disparities between ethnic groups, the current study assesses perceptions of inequalities within the workplace. Also, the results from Study 1 were based on a national sample of New Zealand adults. Because New Zealand has a strong public welfare system that—in theory—prevents individuals from falling too far into poverty, such services may dampen people's levels of IRD. The furlough in California, in contrast, had a direct impact on faculty members' personal income and should heighten

perceptions of IRD. As such, if a doubly deprived response pattern were to exist, it should emerge in the context of the furlough. To these ends, we now turn to a description of Study 2.

Method

Participants

Participants were 953 faculty members employed at four public universities in California. Of these participants, 945 (99.2%) provided partial or complete responses to our indicators and were included in this study. The sample contained roughly an equal number of men ($n = 446$) and women ($n = 461$) who were, on average, 52.43 years old ($SD = 11.06$). As for ethnicity, participants identified as (i) White ($n = 701$), (ii) Asian–American ($n = 64$), (iii) Latino ($n = 40$), (iv) Black ($n = 30$), or (v) other ($n = 52$). Finally, participants had worked at their current university for an average of 14.10 years ($SD = 10.79$), and a majority were tenured ($n = 573$).

Measures

A survey assessing responses to the furlough was administered to university faculty members in 2009. Included in this survey was a two-item measure of IRD adapted from Smith, Cronin, and Kessler (2008). The first item had participants indicate whether their pay was better or worse than 'other faculty employed at [their] university' on a 1 (*significantly worse*) to 5 (*significantly better*; reverse-scored) scale. The second item had participants indicate whether their 'pay was more or less than' they deserved on a 1 (*much more*) to 5 (*much less*) scale. These items were averaged to assess IRD ($r(895) = .353, p < .001$). A similar two-item measure of GRD had participants indicate whether 'faculty at comparable universities' were better or worse off than 'faculty employed at [their] university' and if 'the pay for the average faculty member at [their] university' was more or less than they deserved. These items were averaged to assess GRD ($r(873) = .309, p < .001$).

Also included in the survey were measures of tenure status and political orientation. Tenure status was assessed by having participants indicate their 'academic title' using these response options: (i) adjunct faculty/lecturer, (ii) assistant professor, (iii) associate professor, (iv) full professor, and (v) other. Participants who indicated that they were an associate professor or higher were coded as tenured ($n = 573$). Political orientation was assessed by having participants indicate how they would 'characterise [their] political views'

Table 5. Descriptive statistics and bivariate correlations for the variables included in Study 2

	1	2	3	4	5	6	7
1. Age	—						
2. Sex[a]	−.098**	—					
3. Minority[b]	−.098**	−.010	—				
4. Tenure[c]	.365***	−.173***	−.060†	—			
5. Conservatism	−.031	−.146***	.080*	−.041	—		
6. Individual-based relative deprivation	−.160***	.205***	.057†	−.265***	−.017	—	
7. Group-based relative deprivation	.021	.069*	.021	.100**	−.060†	.357***	—
Mean	52.43	0.51	0.21	0.63	1.99	3.80	4.05
SD	11.06	0.50	0.40	0.48	0.99	0.79	0.69

Note:
[a]Sex was dummy-coded (0 = man; 1 = woman).
[b]Minority was dummy-coded (0 = White; 1 = minority).
[c]Tenure was dummy-coded (0 = non-tenured; 1 = tenured).
†$p < .10$.
*$p < .05$.
**$p < .01$.
***$p < .001$.

Table 6. Model fit for the different profile solutions of the LPA from the furlough study

Profile	Log-likelihood	AIC	BIC	aBIC	Entropy
One profile	−2087.136	4182.272	4201.677	4188.973	—
Two profiles	−1999.835	4013.670	4047.628	4025.397	0.855
Three profiles	−1977.976	3975.953	4024.464	3992.705	0.640
Four profiles	−1946.818	3919.635	3982.701	3941.413	0.820
Five profiles	−1932.559	3897.119	3974.738	3923.922	0.834

Note: LPA, latent profile analysis; AIC, Akaike Information Criterion; BIC, Bayesian Information Criterion; aBIC, sample size-adjusted Bayesian Information Criterion.

on a 7-point scale (1 = *very liberal*; 7 = *very conservative*). Table 5 shows the bivariate correlations and descriptive statistics for the variables included in Study 2.

Results and Discussion

As in Study 1, we conducted a set of LPAs using Mplus version 7.11 (Muthén & Muthén, 1998–2012) in order to identify homogenous response profiles. Specifically, we followed the three-step approach towards LPA (Asparouhov & Muthén, 2013) such that participants' responses to our two-item measure of IRD and our two-item measure of GRD were treated as indicators of distinct latent profiles. In doing so, we estimated from 1 to 5 latent profiles. As before, each profile solution was estimated using 5000 random starts and 500 final iterations to ensure that model solutions were based on global (rather than local) maxima.[4]

[4]The *Mplus* syntax for these analyses is available via the online Appendix. You may also contact the corresponding author to request the *Mplus* syntax.

As shown in Table 6, model fit improved with the addition of each latent profile. For example, the BIC for a one-profile solution was 4201.677 but dropped to 4047.628 for a two-profile solution (ΔBIC1➡2 profiles = 154.049). Similar drops in the AIC, BIC and sample size-adjusted BIC occurred with the addition of each subsequent profile, plateauing with the estimation of the fifth profile (ΔBIC4➡5 profiles = 7.963). Inspection of the proportion of participants falling into each of the latent profiles also indicated that the five-profile solution produced a latent profile whose composition was too small (i.e. *n* = 6, which represents 0.6% of the sample) to be interpretable. Moreover, examination of the estimated means for each of the latent profiles showed that the fifth profile reflected an exaggerated version of the *Content* profile (i.e. moderate levels of IRD, coupled with low levels of GRD). Thus, we decided that four profiles provided the most reasonable solution to our data.

The diagonal in Table 7 shows the average probability that a participant's estimated most likely latent profile membership was the actual profile to which he or she

Table 7. Average latent profile probabilities for most likely latent profile membership (row) by latent profile (column) amongst faculty members affected by the furlough

	1	2	3	4
1. Profile 1 (*Content*)	**.982**	.018	.000	.000
2. Profile 2 (*Slightly Content*)	.006	**.976**	.019	.000
3. Profile 3 (*Moderate*)	.001	.036	**.922**	.041
4. Profile 4 (*Deprived*)	.000	.000	.124	**.876**

Note: Values along the diagonal (highlighted in bold) reflect the average probability that a person estimated to belong to the given latent profile was categorised correctly. Profile 1 was characterised by moderate levels of IRD and low levels of GRD. Profile 2 was characterised by moderate levels of IRD and relatively low levels of GRD. Profile 3 was characterised by moderate levels of IRD and GRD. Profile 4 was characterised by moderate levels of IRD and high levels of GRD.

was assigned. For example, there was a 92.2% chance that a participant whose most likely latent profile membership was estimated to be in *Profile 3* actually belonged there but only a 4.1% chance that he or she actually belonged to *Profile 4*. When examining the whole table, it is clear that there was a high likelihood that participants were correctly categorised but only a small chance that they were incorrectly categorised. These results corroborate our decision to retain the four latent profiles.

Although the proportion of the sample falling into each of these profiles varies from Study 1, the estimated means of IRD and GRD shown in Figure 3 are strikingly similar to those produced in Study 1 (Figure 2). As in the previous study, there was a distinct *Content* profile capturing those who had moderate levels of IRD ($M = 2.912$; $SE = 0.209$; 95% CI [2.503, 3.321]) but low levels of GRD ($M = 1.753$; $SE = 0.115$; 95% CI [1.527, 1.979]). Only 2.1% of the sample, however, fits into this profile. The next smallest group (11.3% of the sample) matched the *Slightly Content* profile from Study 1 and was labelled accordingly. This group had moderate levels of IRD ($M = 3.364$; $SE = 0.099$; 95% CI [3.169,

3.558]) and relatively low levels of GRD ($M = 2.981$; $SE = 0.045$; 95% CI [2.894, 3.069]). Our third latent profile, which contained the majority of our sample (i.e. 50.9%), had moderate levels of IRD ($M = 3.689$; $SE = 0.037$; 95% CI [3.618, 3.761]) and GRD ($M = 3.935$; $SE = 0.019$; 95% CI [3.897, 3.973]). As such, we labelled this group *Moderate*. Finally, the second most populous group (35.7% of the sample) contained those who were not particularly high on IRD ($M = 4.155$; $SE = 0.043$; 95% CI [4.071, 4.240]) but felt their university colleagues were deprived (i.e. high on GRD; $M = 4.687$; $SE = 0.020$; 95% CI [4.649, 4.726]). Accordingly, we labelled this group *Deprived*. It is noteworthy that, once again, there was no support for a doubly deprived profile, nor for Runciman's (1966) general typology.

Demographic Correlates

After identifying the number of profiles needed to explain the co-variation between our indicator variables, we examined demographic correlates of these profiles. To maintain consistency with Study 1, the *Content* profile served as our comparison group. A multinomial logistic regression was then used to predict membership in the given latent profile (relative to the *Content* profile) based on our demographic covariates. These steps were followed via the three-step approach to ensure that our covariates did not influence the estimation of our profiles (Asparouhov & Muthén, 2013).

In contrast to Study 1, demographic variables were unassociated with participants' membership in each of our latent profiles. Women were no more likely than men to belong to the *Slightly Content* profile ($B = 0.302$; $SE = 0.601$; $p = .615$; 95% CI [−0.876, 1.480]), the *Moderate* profile ($B = 0.188$; $SE = 0.558$; $p = .736$; 95% CI [−0.906, 1.282]) or the *Deprived* profile ($B = 0.614$; $SE = 0.563$; $p = .275$; 95% CI [−0.490, 1.717]) relative to the *Content* profile. Likewise, minorities were just as likely
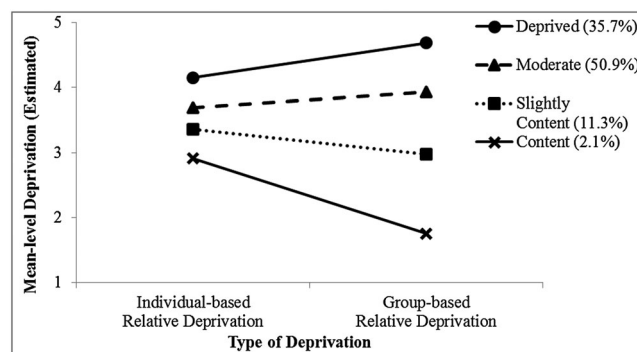

Fig. 3: Estimated means for individual-based and group-based relative deprivations as a function of membership in the given latent profile for Study 2

as Caucasians to belong to each of the three latent profiles (versus the *Content* profile; $B \leq -0.681$, $SEs \geq 0.585$, $p \geq .302$). Tenure status was also unassociated with the likelihood of belonging to any one latent profile (versus the *Content* profile; $B \leq -0.759$, $SEs \geq 0.587$, $p \geq .225$). Finally, conservatism did not predict participants' membership in any of the profiles (versus the *Content* profile; $B \leq 0.173$, $SEs \geq 0.281$, $p \geq .565$). These analyses suggest that the university faculty believed that the furlough affected themselves—and their workgroups—comparably, *irrespective* of their demographic background.

Summary

Although the current study identified four latent profiles underlying people's levels of IRD and GRD, these response patterns were inconsistent with Runciman's (1966) typology. Rather, the latent profiles produced in this study were strikingly similar to those identified in Study 1. Specifically, the profiles produced here had comparable levels of IRD but markedly different levels of GRD. In contrast to Study 1, none of our demographic covariates reliably differentiated between people's most likely latent profile membership—a point which we return to in our General Discussion. Nevertheless, the similarities between the response patterns produced across our two studies are striking and call into question Runciman's typology.

GENERAL DISCUSSION

Relative deprivation theory has long argued that people can be classified into one of the four 'ideal types' based on their perceptions of RD. Namely, people could be (i) complacent and demonstrate an orthodox response to their relative position (i.e. low IRD and low GRD), (ii) individually deprived and thus act as an individual striver (i.e. high IRD, but low GRD), (iii) deprived but only at the group level (i.e. a fraternalist; low IRD, but high GRD), or (iv) doubly deprived (i.e. high IRD and high GRD). Until recently, however, the statistical models used to estimate these distinct latent profiles have been outside the reach of most scholars. Thus, Runciman's (1966) typology has remained an untested, albeit enduring, assumption for nearly 60 years.

We addressed this oversight by conducting an LPA of people's perceptions of IRD and GRD in two countries (i.e. New Zealand and the USA) that focused on two distinct social identities (i.e. ethnic and workplace identities). Notably, neither of our studies found support for Runciman's (1966) typology. Indeed, comparing the theoretical types presented in Figure 1 with our results in Figures 2 and 3 highlights the *lack of support* for

Runciman's position. As shown here, participants in both studies indicated that they experienced similar levels of IRD, yet varied considerably in their feelings of GRD. These findings disconfirm Runciman's ideal types and highlight the need to reconsider the relationship between IRD and GRD.

While our data should lead scholars to treat the concept of the doubly deprived with scepticism, our results corroborate research on the personal/group discrimination discrepancy (Crosby, 1984). Specifically, research indicates that, whereas people generally recognise that members of their group experience discrimination, they often deny *personally* being the victims of inequitable treatment (Taylor et al., 1990). Indeed, as we have shown here, distinct profiles of participants in *both* our samples had relatively similar levels of IRD, yet varied in their perceptions of GRD. Moreover, those who belonged to latent profiles marked by high levels of GRD tended to be those who are also the typical victims of inequality (i.e. those of low SES, minorities and the elderly). Indeed, Study 1 showed that minorities were over 133 times more likely than New Zealand Europeans to belong to the *Deprived* (versus *Content*) latent profile.

STRENGTHS, LIMITATIONS AND FUTURE DIRECTIONS

One of the major strengths of this research is our ability to replicate our results across two distinct contexts. Whereas Study 1 focused on disparities between ethnic groups in a national sample, Study 2 examined perceptions of IRD and GRD within the context of a workplace dispute. Moreover, participants in Study 2 were directly affected by the furlough, as their personal incomes were reduced by 10%. Despite the diversity of these settings, our analyses consistently uncovered four distinct response profiles marked by similar levels of IRD but considerable variability in GRD. Our ability to replicate these latent response profiles across such disparate contexts—and social identities—speaks to the robustness of our results.

Although the response profiles identified by our LPA replicated across studies, the proportion of participants falling into each of these profiles did vary. Whereas the majority of participants were categorised as *Content* (49.6%) or *Slightly Content* (27.9%) in Study 1, less than one-fifth of participants in Study 2 were similarly categorised (i.e. 2.1% and 11.3%, respectively). These findings imply that, while the content of the latent profiles underlying RD is stable, the type of dispute can affect the salience of group-based status differences. Thus, people may be able to move from a *Content* to a

Deprived latent profile in conflicts where their group identity is highly salient (as was the case with the furlough). Identifying the factors that facilitate the transition from one profile to another will be an important topic for future research.

Another difference found across studies relates to the demographic correlates of profile membership. Specifically, whereas Study 1 showed that age, ethnicity and political ideology predicted profile membership, these demographic variables were unassociated with participants' profile membership in Study 2. It is likely, however, that these differences emerged because of the specific type of intergroup conflict assessed in each study. Indeed, the items used to assess GRD in Study 1 made explicit reference to participants' ethnicity. In contrast, participants in Study 2 were asked to compare the salaries of faculty from their university with the pay received by faculty at other universities. Because ethnic group membership is largely removed from this latter type of comparison, it is perhaps unsurprising that ethnicity was unassociated with profile membership in Study 2.

It should also be noted that the sampling frames differed across studies. Specifically, Study 1 consisted of a random sample of adults, whereas participants in Study 2 came from a selected group of people with advanced degrees (who teach at public universities in California). As such, the relative homogeneity of the sample recruited in Study 2 may have constrained the extent to which demographic variables were able to predict profile membership. Indeed, scholars have recently called out social psychologists in particular for the lack of ideological diversity found within the field (Duarte et al., in press). Although admittedly speculative, these differences across studies may explain why demographic variables predicted profile membership in one context (i.e. Study 1) but not the other (i.e. Study 2).

It is also important to note that we only assessed two types of social identities (i.e. ethnic and workplace identities). As such, a doubly deprived profile may exist for other groups. We believe, however, that this possibility is unlikely. For one, the absence of a doubly deprived profile occurred because people refused to believe that they were *personally* deprived. As noted earlier, the tendency to deny that one is personally the victim of unfair treatment is a robust phenomenon and is not unique to the current studies (Crosby, 1984; Operario & Fiske, 2001; Taylor et al., 1990). Moreover, our participants were from a national sample of adults (Study 1) and faculty members who had experienced a large reduction in their personal incomes (Study 2)—factors that should *increase* levels of IRD. It is noteworthy that we were unable to substantiate Runciman's (1966)

typology under such favourable conditions. Still, researchers should aim to replicate our results with participants who belong to other social categories.

Another interesting set of findings that requires further examination were the *positive* associations between conservatism and the likelihood of belonging to the (i) *Slightly Content* and (ii) *Moderate* latent profiles (relative to the *Content* latent profile) produced in Study 1. These results imply that conservatism *increased* the likelihood that participants' would be discontent with their group's status relative to other groups in New Zealand. Because these results contradict conservatives' motivation to support the status quo (Jost et al., 2003), we re-analysed our data separately for minority and majority group members.

Results from these exploratory analyses showed that political conservatism was positively associated with belonging to the *Slightly Content* ($B = 0.194$; $SE = 0.032$; $p < .001$; 95% CI [0.131, 0.257]), *Moderate* ($B = 0.142$; $SE = 0.036$; $p < .001$; 95% CI [0.071, 0.212]) and *Deprived* ($B = 0.185$; $SE = 0.104$; $p = .076$; 95% CI [−0.019, 0.389]) latent profiles (versus the *Content* profile) amongst New Zealand Europeans. For minorities, however, conservatism was *only* associated with the likelihood of being in the *Moderate* (versus *Content*) latent profile ($B = 0.185$; $SE = 0.051$; $p < .001$; 95% CI [0.085, 0.285]). Thus, conservatism was associated with *denying* the privileged position of one's ethnic group amongst majority group members but was largely unassociated with latent profile membership for minorities. Future research should replicate these findings before drawing any conclusions.

CONCLUSION

Since Runciman's (1966) initial distinction between IRD and GRD, scholars have assumed that people can feel that they are personally—and that their group is also—deprived. Across two studies that varied by country and type of dispute, we tested this assumption and failed to identify a group of doubly deprived participants. Rather, our latent profiles show that, whereas perceptions of IRD were constrained, there was substantial variability in the experience of GRD. Covariates were then introduced to validate these profiles and showed that minorities were over 133 times more likely than majority group members to belong to the *Deprived* (versus *Content*) profile. These findings call into question a classic assumption in the literature and highlight important directions for future research. Although the doubly deprived may *theoretically* be the 'most relatively deprived of all' (Runciman, 1966, p. 34), *empirical* support for their existence is as rare as hen's teeth.

SUPPORTING INFORMATION
Additional supporting information may be found in the online version of this article at the publisher's web-site.

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